

# Transient Voltage Suppressors Array for ESD Protection

Low Capacitance

## ESD05V10S-4L

### Description

The ESD05V10S-4L is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.

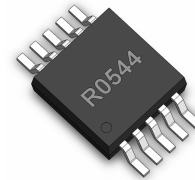
### Feature

- u 125 Watts Peak Pulse Power per Line (tp=8/20µs)
- u Protects four I/O lines and one Vcc line
- u Low capacitance
- u Working voltages : 5V
- u Low leakage current
- u IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- u IEC61000-4-4 (EFT) 40A (5/50ns)
- u IEC61000-4-5 (Lightning) 5A (8/20µs)

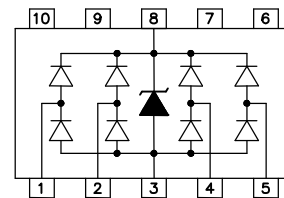
### Applications

- u High Definition Multi-Media Interface (HDMI)
- u Digital Visual Interface (DVI)
- u 10/100/1000 Ethernet
- u Monitors and Flat Panel Displays
- u Notebook Computers
- u Set Top Box
- u Projection TV

### MSOP-10



### Functional Diagram



### Mechanical Characteristics

- u MSOP-10 Package
- u Molding Compound Flammability Rating : UL 94V-0
- u Weight 12.0 Milligrams (Approximate)
- u Quantity Per Reel : 1,000pcs
- u Reel Size : 7 inch
- u Lead Finish : Lead Free

### Mechanical Characteristics

Symbol	Parameter	Value	Units
P <sub>PP</sub>	Peak Pulse Power (tp=8/20µs waveform)	125	W
T <sub>L</sub>	Lead Soldering Temperature	260 (10sec)	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to +150	°C
T <sub>J</sub>	Operating Temperature Range	-55 to +150	°C
	IEC61000-4-2 (ESD)	Air Discharge ±15 Contact Discharge ±8	KV
	IEC61000-4-4 (EFT)	40	A
	IEC61000-4-5 ( Lightning )	5	A

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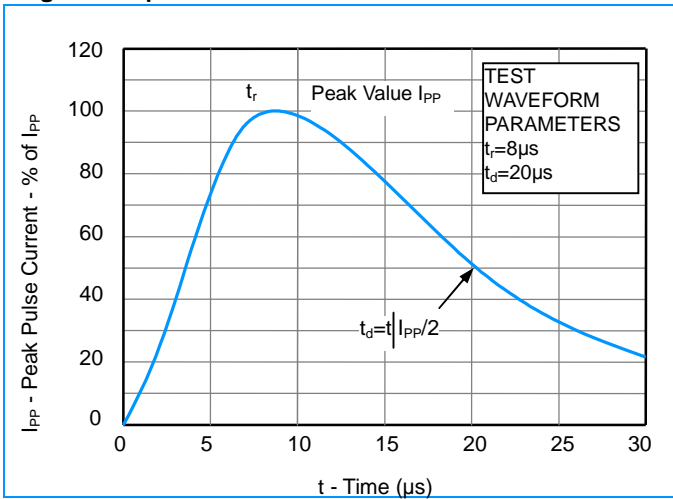
## ESD05V10S-4L

Electrical Characteristics (@ 25°C Unless Otherwise Specified)

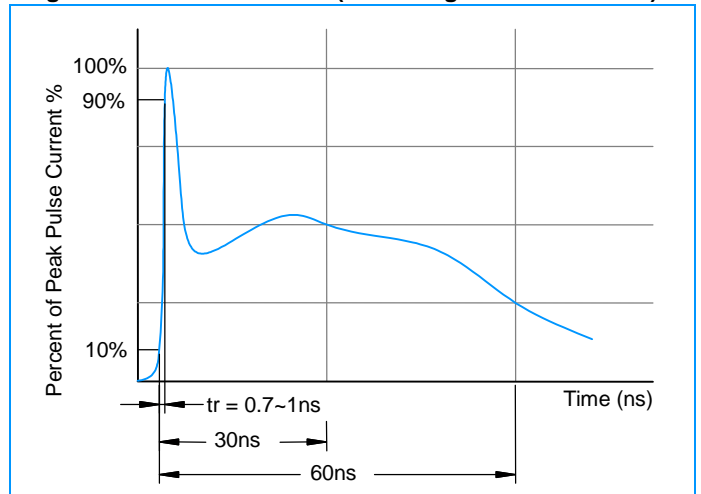
Part Number	Device Marking	V <sub>RWM</sub> (V) (Max.)	V <sub>B</sub> (V) (Min.)	I <sub>T</sub> (mA)	V <sub>C</sub> @1A (Max.)	V <sub>C</sub>		I <sub>R</sub> (μA) (Max.)	C (pF) (Typ.)
						(Max.)	(@A)		
ESD05V10S-4L	R0544	5	6	1	15	20	5	1	0.5

### Characteristic Curves

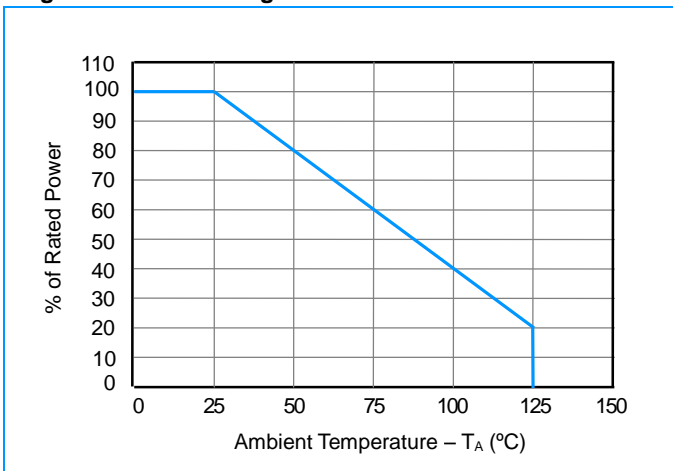
**Fig1. 8/20μs Pulse Waveform**



**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**



**Fig3. Power Derating Curve**

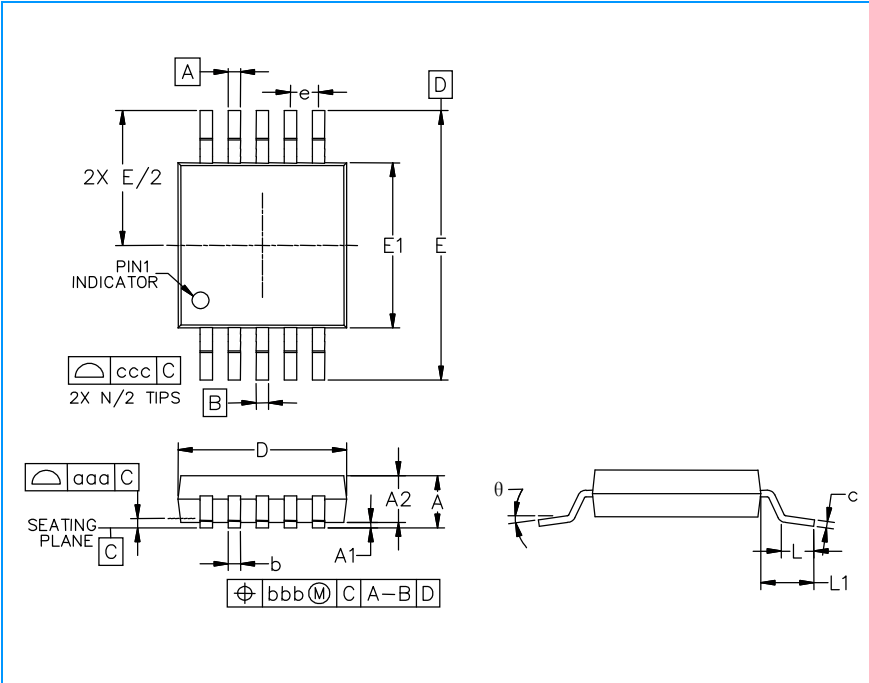


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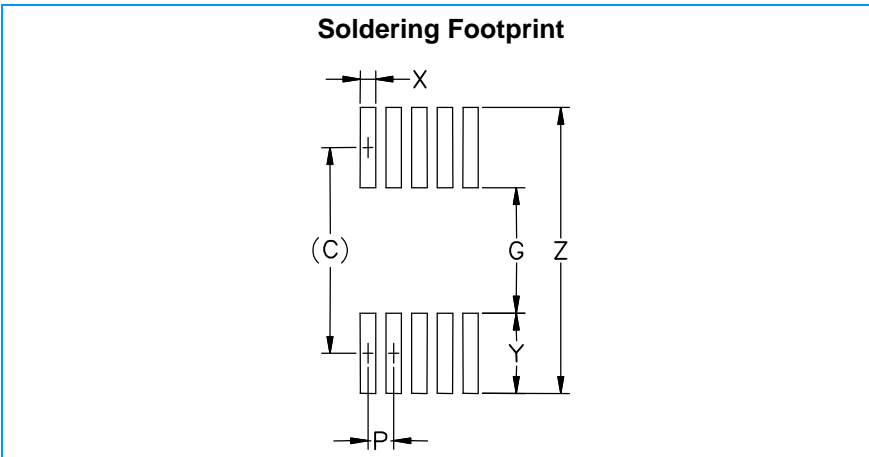
## ESD05V10S-4L

### MSOP-10 Package Outline & Dimensions



Symbol	Inches			Millimeters		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	-	-	0.043	-	-	1.10
A1	0.000	-	0.006	0.00	-	0.15
A2	0.030	-	0.037	0.75	-	0.95
b	0.007	-	0.011	0.17	-	0.27
c	0.003	-	0.009	0.08	-	0.23
D	0.114	0.118	0.122	2.90	3.00	3.10
E1	0.114	0.118	0.122	2.90	3.00	3.10
E	0.193 BSC			4.90 BSC		
e	0.020 BSC			0.50 BSC		
L	0.016	0.024	0.032	0.40	0.60	0.80
L1	(0.037)			(0.95)		
N	10			10		
θ	0°	-	8°	0°	-	8°
aaa	0.004			0.10		
bbb	0.003			0.08		
ccc	0.010			0.25		

### Soldering Footprint



Symbol	Inches	Millimeters
C	(0.161)	(4.10)
G	0.098	2.50
P	0.020	0.50
X	0.011	0.30
Y	0.063	1.60
Z	0.224	5.70